

A NEW SPECIES OF *MANAYUNKIA* (POLYCHAETA) FROM EPHEMERAL LAKES NEAR THE COORONG, SOUTH AUSTRALIA

by PAUL HUTCHINGS*, PATRICK DE DECKKER†¹ & MICHAEL C. GEDDES‡

Summary

HUTCHINGS, P., DE DECKKER, P. & GEDDES, M. C. (1981) A new species of *Manayunkia* (Polychaeta) from ephemeral lakes near the Coorong, South Australia. *Trans. R. Soc. S. Aust.* **105**(1), 25-28, 12 June, 1981.

The polychaete *Manayunkia athalassia* n.sp. is described from ephemeral lakes adjacent to the Coorong Lagoon, South Australia. This is the first record of this genus from Australia. *Manayunkia athalassia* is active over a wide range of salinities (27-95‰) and persists in dry lake beds during the summer months.

Introduction

The fauna of athalassic (non marine) saline lakes in south-eastern Australia has been listed in several studies (Bayly & Williams 1966, Bayly 1970, Geddes 1976, Williams 1978, De Deckker & Geddes 1980). The only record of polychaete worms is from a small lake near Lake Eliza, South Australia where *Ceratonereis erythraeensis* Fauvel and *Capitella capitata* (Fabricius) were collected (Bayly 1970). These species are known to tolerate a wide range of salinities but cannot resist desiccation. During a recent study of 23 ephemeral lakes near the Coorong Lagoon, South Australia (De Deckker & Geddes 1980) another polychaete, a new species of *Manayunkia*, was common in several localities.

Manayunkia athalassia n. sp.

FIG. 1

Type material

Holotype (Aust. Mus. W17671) from ephemeral lake at 36°19'46"S, 139°44'48"E, adjacent to Coorong, S.A., coll. P. De Deckker & M. C. Geddes 17.vii.1978.

Paratypes from various ephemeral lakes adjacent to Coorong (20 specimens, AM W17672), United States National Museum (1 specimen USNM 63370), British Museum (Natural History) (1 specimen ZB 1980: 265). Further material in Australian Museum (9 specimens AM W17677).

Tentacular crown colourless, anterior body up to setiger 3-5 darkly pigmented, rest of body colourless. Thorax of eight setigers,

abdomen of three setigers. All thoracic setigers similar in size, abdominal setigers equal in length, slightly shorter than thoracic setigers. Tentacular crown of paired symmetrical halves with semicircular bases, each half with two short compact radioles. Outer radiole with four short stumpy pinnules and inner radiole with three, originating close to the base of the radioles. Radioles ciliated and not connected by web-like membrane. Ventral paired palps vascularised, smooth and with skeleton; palps, thicker than radioles but similar in length. Prostomium bluntly rounded with pair of pigment eye spots, visible only after removal of tentacular crown. Peristomial collar well developed ventrally, triangular with rounded apex; collar developed laterally as narrow rim and present dorsally as two small lappets. Setiger 1 with notosetae only, subsequent setigers with noto- and neurosetae. Notosetae of two kinds, basically broad bladed capillaries and hastate setae; thoracic neurosetae long handled hooks, abdominal neurosetae long handled uncini with six or seven horizontal rows of teeth, each row with four or five teeth, teeth not perfectly aligned in rows, fewer teeth per row towards apex. Number of noto- and neurosetae per setiger shown in Table 1. Triangular pygidium with no pygidial eye spots.

Length of holotype 5 mm, paratypes 3-4 mm. Width of holotype 0.5 mm, paratypes 0.4-0.5 mm.

Ecology

Manayunkia athalassia occurs in ephemeral, athalassic, saline lakes adjacent to Coorong Lagoon, South Australia. The lakes, in which *M. athalassia* occurs, are not connected to the sea, and are characterised by fluctuating salinities and varying water levels, due to the raising and lowering of the saline water

* Australian Museum, P.O. Box A285, Sydney South, N.S.W. 2000.

† Department of Zoology, University of Adelaide, S.A.

¹ Present address: Department of Biogeography & Geomorphology, Australian National University, Canberra, A.C.T.

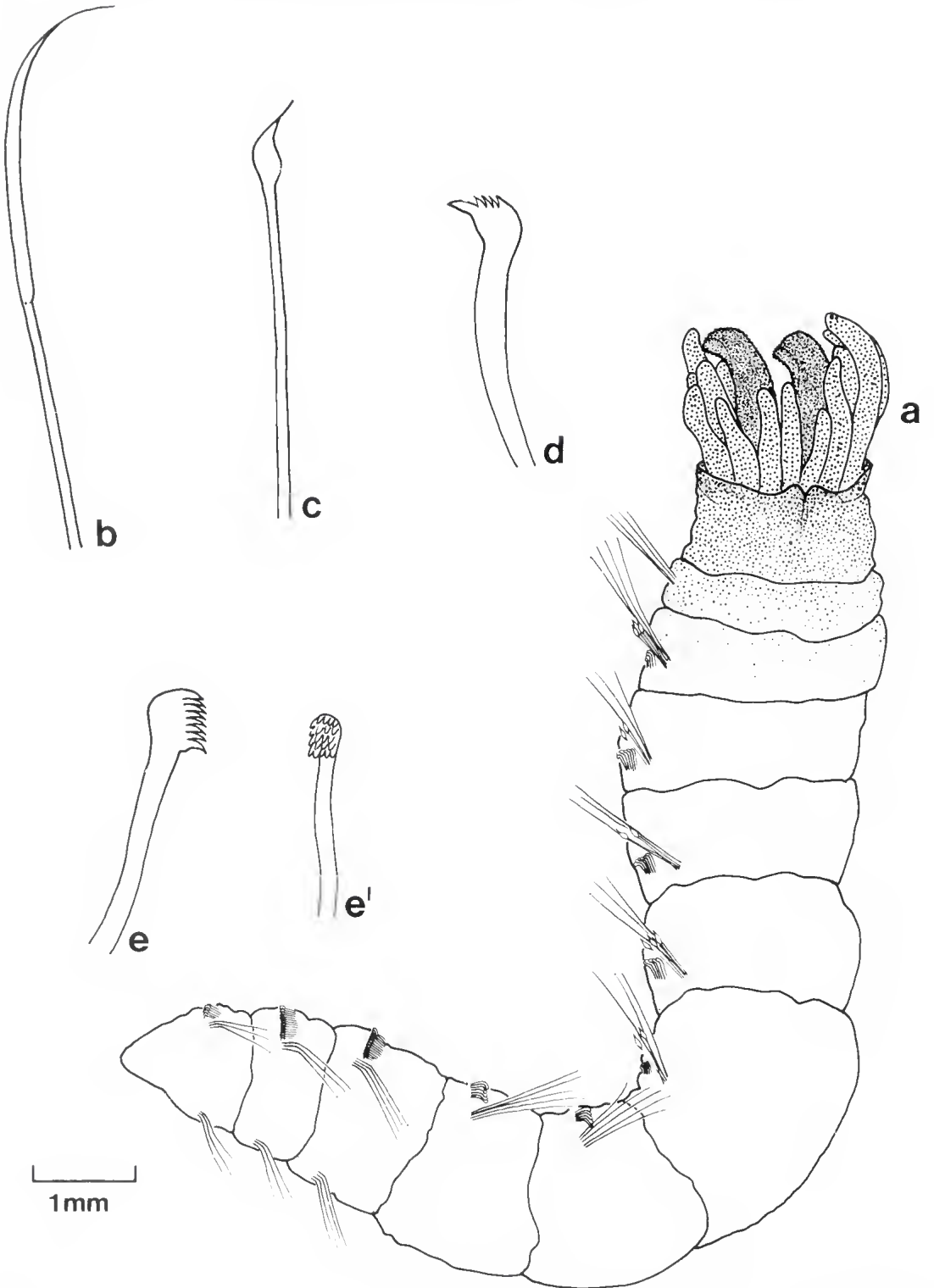


Fig. 1a. *Manayunkia athalassia* n.sp. entire animal, dorsal view, b. capillary seta, c. hastate thoracic seta, d. thoracic neuroseta, e. abdominal neuroseta, lateral and head on view.

TABLE 1. Number of notosetae and neurosetae per setiger.

Setiger	Notosetae capillaries	hastate	Neurosetae (all uncini)
Thoracic 1	4	1	absent
2	3	2	4
3	3	3	4
4	3	2	4
5	3	2	4
6	3		3
7	5		2
8	5		4
Abdominal 1	3		10
2	3		12
3	3		11

table and to seasonal precipitation. A description of the physical and biological features is given by De Deckker & Geddes (1980). The polychaetes collected by Bayly (1970) were not found in this study.

Manayunkia athalassia lives in translucent gelatinous tubes, in soft clayey carbonate sediments which some times contain shell debris (ostracods, gastropods). Occasionally *M. athalassia* was found living in a colony of up to 20 individuals. Empty gelatinous tubes also were found.

This species certainly persists in the lake beds while lakes are dry over the summer months. Even when the lakes are dry some moisture may be trapped by hygroscopic salt crystals, and an occasional cover of dead aquatic plants such as *Lepilaena* sp. and *Ruppia* sp. and, less frequently, the alga *Lamprothamnion papulosum* on the surface of the mud. However, the summer air temperatures may exceed 40°C. In February 1979 distilled water was added to samples of mud collected from dry lakes where *M. athalassia* occurred the previous season. Within one day active adults were seen at the wide range of salinities of 27–95‰. Further laboratory studies showed that it could be maintained in an aquarium of 82‰ for several months.

Comments

Manayunkia athalassia differs from congeners in being found in ephemeral saline environments isolated from the sea; the other species are found in marine or brackish water conditions. *M. brasiliensis* Banse, 1956 collected in mangroves in Canaëa in Brazil may experience some hyper-marine salinities in the

interstitial water during low tide, but no salinity measurements are given.

Manayunkia athalassia also differs morphologically from the other species. *M. caspica* Annenkova, 1928 has six or seven pinnules per radiole and *M. speciosa* Leidy, 1859 has six radioles with about 60 pinnules per radiole. Southern (1921) suggests that the arrangement of the filaments, which appear to be attached in groups to a short common stem, is an artifact and probably due to the contraction of the basal membrane. However, we suggest that the filaments arise from a short common stem as in congeners, but we have not examined the type. *M. polaris* Zenkewitsch, 1935 has equal numbers of pinnules on both radioles, whereas *M. athalassia* has three pinnules on the inner and four on the outer radiole. *M. aestuarina* (Bourne 1883) has four pinnules per radiole with the paired palps considerably longer than the pinnules, whereas in *M. athalassia* the palps and the pinnules are similar in length.

Detailed setal counts are given only for *M. brasiliensis* and *M. polaris*. *M. brasiliensis* has more setae of all kinds on both abdominal and thoracic setigers than *M. athalassia*. In addition *M. brasiliensis* has capillary setae of two different lengths whereas *M. athalassia* has all capillary setae of similar length. *M. polaris* has considerably more abdominal uncini than *M. athalassia*. For these reasons *M. athalassia* is described as a new species. The specific name refers to the type of saline lakes in which this species lives.

Only three genera of the subfamily Fabriciinae have been recorded from Australia: *Desdenona*, *Fabricia* and *Oriopsis* (Day & Hutchings 1979). Hartmann-Schroeder & Hartmann (1979) have described an *Oriopsis* sp. and Fabriciinae gen. and sp. indet. from Port Hedland, Western Australia. *Manayunkia athalassia* is the first record of this genus from Australia, but several other species of the subfamily Fabriciinae are present in Australia and shortly will be described by Hutchings. Earlier, general marine collections overlooked the Fabriciinae because they are small and often have specialised habitat requirements.

Acknowledgments

We thank Anna Murray for the artwork, and Karl Banse for his comments on the generic status of the specimens.

References

- ANNENKOVA, N. (1928) Ueber die pontokaspischen Polychaeten. 2. Die Gattungen *Hypaniola*, *Parhypania*, *Fabricia* und *Manayunkia*. *Ann. Mus. Zool. Leningrad* **30**, 13-20.
- BANSE, K. (1956) Beiträge zur Kenntnis der Gattungen *Fabricia*, *Manayunkia* und *Fabriciella* (Sabellidae, Polychaeta). *Zool. Jb. (Syst.)* **84**, 415-38.
- BAYLY, I. A. E. (1970) Further studies on some saline lakes in south-east Australia. *Aust. J. Mar. Freshwat. Res.* **21**, 117-29.
- & WILLIAMS, W. D. (1966) Chemical and biological studies on some saline lakes of south-east Australia. *Ibid.* **17**, 177-223.
- BOURNE, A. G. (1883) On *Haplobranchius*, a new genus of Capitobranchiate Annelids. *Q. J. microsc. Sci.* **23**, 168-76.
- DAY, J. H. & HUTCHINGS, P. A. (1979) An annotated check-list of Australian and New Zealand Polychaeta, Archiannelida and Myzostomida. *Rec. Aust. Mus.* **32**, 80-161.
- DE DECKKER, P. & GEDDES, M. C. (1980) The seasonal fauna of ephemeral saline lakes near the Coorong Lagoon, South Australia. *Aust. J. Mar. Freshwat. Res.* **31**, 677-99.
- GEDDES, M. C. (1976) Seasonal fauna of some ephemeral saline waters in western Victoria with particular reference to *Parartemia zietziana* Sayce (Crustaceat: Anostraca). *Ibid.* **27**, 1-22.
- HARTMANN-SCHROEDER, G. & HARTMANN, G. (1979) Zur Kenntnis des Eulitorals der australischen Küsten unter besonderer Berücksichtigung der Polychaeten und Ostracoden. (Teil 2 und Teil 3). *Mitt. Hamb. Zool. Mus. Inst.* **76**, 75-218.
- LEIDY, J. (1859) *Manayunkia speciosa*. *Proc. Acad. nat. Sci. Philad.* **10**, 90.
- SOUTHERN, R. (1921) Polychaeta of the Chitka Lake and also of fresh and brackish water in other parts of India. *Mem. Indian Mus.* **6**, 563-659.
- WILLIAMS, W. D. (1978) Limnology of Victorian salt lakes, Australia. *Verh. Internat. Verein. Limnol.* **20**, 1165-74.
- ZENKEWITSCH, I. (1935) Über das Vorkommen der Brackwasserpolychaete *Manayunkia* (*M. polaris* n.sp.) an der Murmanküste. *Zool. Anz.* **109**, 195-203.